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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/672,920      | 09/26/2003  | Thierry Divel        | 02-GR2-179          | 9464             |

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EXAMINER

CHANG, JOSEPH

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 04/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/672,920

Applicant(s)

DIVEL ET AL.

Examiner

Joseph Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/23/04</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 8, 10, 12, 19 and 21 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Kwek et al. US Pat. No. 6774736 (Kwek).

Regarding Claims 1 and 12, Kwek discloses a voltage-controlled oscillator (Figure 2), comprising:

an oscillating circuit (LC) and an active circuit (FET), the oscillating circuit including an inductive circuit (pair of 225) and a capacitive circuit (pair of 235, 240) sharing a first main terminal (left side, +Vn) with a first main terminal voltage (+Vn) and a second main terminal (Right side, -Vn) with a second main terminal voltage (-Vn) to which the active circuit (FET) is connected to maintain an oscillatory transfer of electrical energy between the inductive circuit and the capacitive circuit at a frequency dependent on the capacitance of the capacitive circuit (intrinsic functionality), the capacitance varying as a function of an adjustable potential difference formed by a difference between a biasing voltage (Vref) and an adjustable control voltage (Vcon), the capacitive circuit (pair of 235, 240) includes:

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one or more circuit branches, where each circuit branch comprises a first half (left portion) and a second half (right portion) the first half and the second half each comprises at least one capacitive element of variable capacitance (240) connected in series between the first main terminal and the second main terminal ( $+V_n$  and  $-V_n$  terminals) and distributed over the first half and the second half so that each of the first half and the second half is mutually symmetrical (pair) with respect to a central terminal on which the adjustable control voltage ( $V_{con}$ ) is applied (the figure clearly shows);

wherein the first half (left portion) includes an outer most terminal (236) with a first voltage proportional to the first main terminal voltage ( $+V_n$ ) shifted by the biasing voltage ( $V_{ref}$ ) and;

wherein the second half (right portion) includes an outer most terminal with a second voltage proportional to the second main terminal voltage shifted by the biasing voltage (see Col. 4, lines 35-61).

Regarding Claims 8 and 19, Figure 2 shows a pair of resistors (246A, 246C)

Regarding Claims 10 and 21, Figure 2 shows a pair of decoupling capacitors (235).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2-7, 9, 11,13-18, 20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwek et al. US Pat. No. 6774736 (Kwek) in view of Gomez et al. US Pub. No. 20020008593 A1 (Gomez).

Regarding Claims 2,3,4,13,14,15, as noted above rejections, the teachings of Kwek have been discussed except one additional circuit branch connected in parallel.

Gomez shows in Figure 2 three branches (26,28,30) connected in parallel and further teaches that such varactors in a sequential manner (succession) provides a smooth change in the total capacitance of the oscillator, hence reductions in oscillator noise.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to include additional branches to the circuit of Kwek because such a modification would have provided the benefit of a smooth change in the total capacitance of the oscillator, hence reductions in oscillator noise as taught by Gomez.

Regarding Claims 5, 16, "a different number of capacitive elements" would have been obvious based on the desire wide frequency range (Para.[0029] of Gomez).

Regarding Claims 6,7,17,18, Gomez teaches the capacitive elements being MOS type varactors.

Regarding Claims 9, 20, Figure of Kwek shows a pair of resistors (246A, 246C).

Regarding Claims 11, 22, Figure 2 shows a pair of decoupling capacitors (235).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US006833769B2 discloses a vco with voltage controlled capacitive elements having a biasing network.

US006674333B1 discloses a band switchable VCO.

US006317006B1 discloses in Fig. 29 a diagram of time shifted total capacitance.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Chang whose telephone number is 571 272-1759. The examiner can normally be reached on Mon-Fri 0700-1730.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Joseph Chang", written in a cursive style.

Joseph Chang  
Patent Examiner  
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